

A NEW SPECIES OF THE GENUS *ONCHODELLUS* (ACARI: MESOSTIGMATA: PACHYLAELAPIDAE) FROM CRIMEA, UKRAINE

¹P. Mašán, ²S. I. Maslov and ²A. A. Khaustov

¹ Institute of Zoology, Slovak Academy of Sciences, Dúbravská cesta 9, 845-06 Bratislava, Slovakia; e-mail: peter.masan@savba.sk

² Nikita Botanical Gardens — National Scientific Center, Yalta, Crimea 98648, Ukraine; e-mails: alkhaustov@mail.ru; serdok78@mail.ru

ABSTRACT: A new species, *Onchodellus euparadactylifer* sp. n., collected from the sea debris on the shore of the Black Sea in Crimea is described.

KEY WORDS: *Onchodellus*, Pachylaelapidae, new species, seashore, Opuk, Crimea

INTRODUCTION

The genus *Onchodellus* Berlese, 1904 is by far the largest genus of the family Pachylaelapidae, with up to 80 species distributed mainly in Europe, Asia and Africa (Mašán and Halliday, in press). In Ukraine six species of this genus were reported by Koroleva (1977), all classified in the genus *Pachylaelaps* Berlese, 1888: *P. brachyperitrematus* Koroleva, 1977; *P. hispani* Berlese, 1908; *P. karawaiewi* Berlese, 1920; *P. nidicolens* Koroleva, 1977; *P. regularis* Berlese, 1920; and *P. siculus* Berlese, 1892. Now we know, based on a revision work of Mašán (2007), that *P. brachyperitrematus* is a synonym of *O. islandicus* (Sellnick, 1969), *P. hispani* and *P. regularis* sensu Koroleva (1977) are misidentified species, viz. *O. anovillosus* (Berlese, 1920) and *O. substrictus* Mašán, 2007, respectively. Here we describe a new species of the genus *Onchodellus* collected from sea debris on the shore of Black Sea of the Opuk Nature Reserve (Crimea, Ukraine).

MATERIALS AND METHODS

Mites were collected from the sea debris from the supralittoral zone of the Black Sea, on a sandy beach in the Opuk Nature Reserve (Crimea, Ukraine) using Tullgren funnels and mounted in Hoyer's medium. The terminology of the leg chaetotaxy as well as dorsal and ventral chaetotactic pattern used in this paper follows Evans (1963) and Lindquist and Evans (1965) as applied by Moraza and Peña (2005). The idiosomal adenotaxy and poroidotaxy follows Johnston and Moraza (1991). All measurements are given in micrometers (µm).

SYSTEMATICS

Family Pachylaelapidae Berlese, 1913
Genus *Onchodellus* Berlese, 1904
***Onchodellus euparadactylifer* sp. n.**

Figs 1–6

Description. Female. Dorsal idiosoma (Fig. 1). Dorsal shield 590–695 long and 360–425 wide,

oblong (length/width 1.6–1.74), suboval, with truncate anterior margin and delicate reticulation on surface; line-reticulate pattern regularly scale-like posteromedially, and poorly developed or absent on submedial (between setae *j5–z5–j6–J1*) and posteromarginal (between setae *J4–J5*) surfaces. Dorsal shield with 30 pairs of setae and 21 pairs of pore-like structures; setae smooth, needle-like and relatively robust. Most of dorsal shield setae generally subequal in size, 45–75 in length (except *j1* 27–35, *j5* 40–52, *z1* 17–22, and *J5* 37–50). Setae *J4* relatively long, 60–75 in length, slightly differing from *J5* (*J4/J5* 1.24–1.78, but usually 1.4–1.6); length of other dorsocentral setae on opisthonotum as follows: *J1* 47–67, *J2* 55–72, and *J3* 55–75. **Distances of some dorsal shield setae** as follows: *j5–j5'* 73–85, *j5–z5* 37–50, *J1–J2* 44–55, *J2–J2'* 125–155, *J2–J3* 78–106, *J3–J4* 88–106. Marginal rows of *r*- and *R*-setae on dorso-lateral soft integument with six pairs of setae; length of marginal setae slightly increasing posteriorly (*r6* 26–35, *R1* and *R3* 30–35, *R4* 33–40, *R5* 38–55, *R6* 50–60). Gland pores *gdS4* slightly hypertrophied, with slot-like opening; gland pores *gdZ1* not modified, with normal circular opening and paraxial position to alignment *Z1–Z2*.

Ventral idiosoma (Fig. 2). Sternal shield 210–242 long, with distinct reticulate pattern on surface and four pairs of sternal setae; the setae slightly differing in length (*st1* 50–70, *st2* 45–60, *st3* 40–55, *st4* 45–65). Genitiventral shield tongue-shaped, longer than wide (length 211–242, width 181–201, length/width 1.13–1.27), regularly rounded posteriorly, undistinctly punctate medially, bearing weak line-reticulate pattern and two pairs of setae (*st5*, *Jv1*). Sternal and genitiventral shields subequal in length (SS length/GVS length 0.93–1.05). Anal shield subtriangular, 66–86 long and 91–109 wide (length/width 0.68–0.85), mostly smooth, sometimes with transverse sculptural line and punctation in its anteriormost part; three

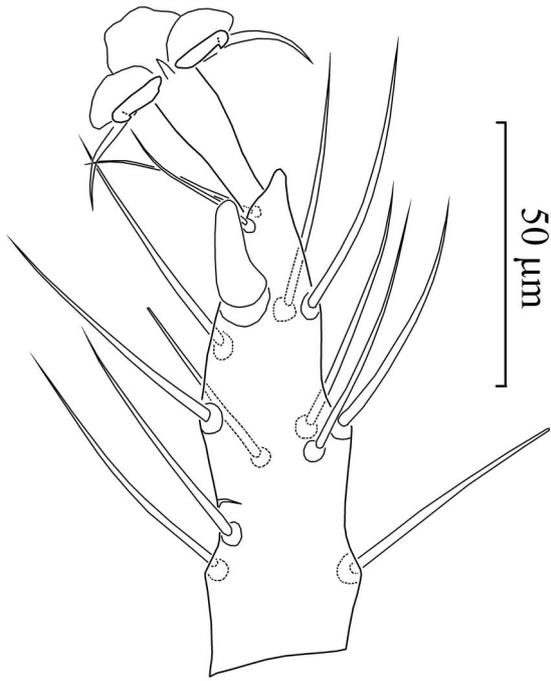


Fig. 3. *Onchodellus euparadactylifer* sp. n., female: 3 — telotarsus II.

Gnathosomal structures (Figs 5–6). Epistome (Fig. 5) widened basally, serrate on lateral margins, with wide central projection distally; this projection with short neck and well developed denticles on anterior margin. Corniculi robust and horn-like. Cheliceral digits relatively long and slender; movable digit with two subdistal teeth, and fixed digit with three subdistal teeth and short pilus dentilis (Fig. 6). Palp apotele 3-tined.

Type material. Female holotype (slide No. SM080712): UKRAINE, Crimea, Opuk Nature Reserve, sandy beach, sea debris mainly including *Zostera* sp. (Zosteraceae), supralittoral zone of Black Sea, 45°02'N, 36°14'E, July 8, 2012 (coll. S.I. Maslov); paratypes: seven females, with the same data as holotype.

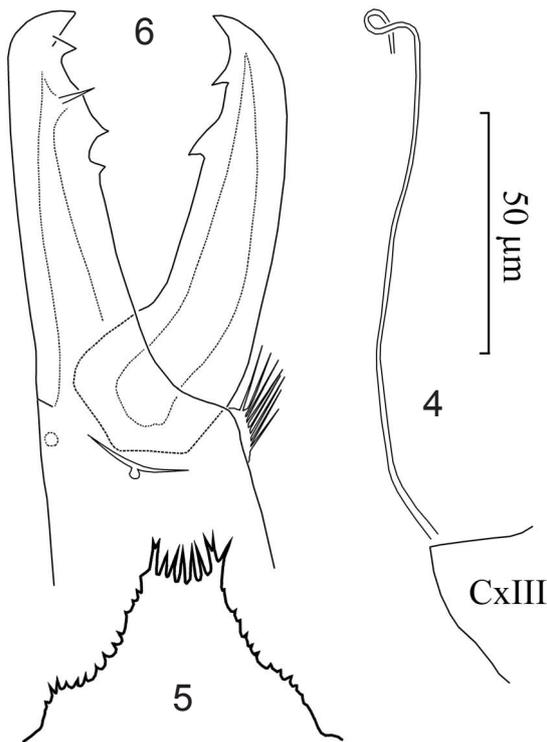
Type depositories. The holotype and three paratypes are deposited in the collection of the Nikita Botanical Gardens — National Scientific Centre, Yalta, Ukraine; four other paratypes at the Institute of Zoology, Slovak Academy of Sciences, Bratislava, Slovakia.

Etymology. The specific name is derived from the Greek words „eu-“ (true, good), „paradactylos“ (paradactyl, a specific term for paired structure developed on pretarsus) and „ferain“ (bear), referring to the excessively developed paradactyli on tarsi II–IV. In known species of the genus *Onchodellus*, these pretarsal structures are minute, barely discernible and shorter than claws.

Differential diagnosis. Disregarding the specific metric data and measurements given for *Onchodellus euparadactylifer* sp. n., the new species may be distinguished from the other species of *Onchodellus* by the following: 1) paradactyli on pretarsi II–IV well elongated and curved, 2) the vertex (anterior margin of dorsal shield) is widely truncated, 3) the anterior tips of the peritremes distinctly overpassing the bases of the setae *z1*, and 4) the dorsal shield setae robust.

When using the key to 33 European species of *Onchodellus* females by Mašán (2007), new species can be keyed out together with *Onchodellus anovillosus*, *O. hispani*, *O. montivagus* Mašán, 2007, *O. siculus*, and *O. squamosus* (Koroleva 1977), by the following: 1) dorsal setae *J4* more than 50 µm in length (entry 42); 2) setae *J5* less reduced in length in comparison with *J4*, longer than 37 µm and only 1.1–1.7 times shorter than setae *J4* (entries 44, 46, 56); and 3) lateral and opisthogastric soft integument with 14–15 pairs of setae (entry 52). Further separation of the above mentioned species in the key is derived from the length of peritremes (entries 57, 58). There is a group of four species having the anterior sections of peritremes shorter and with their tips reaching between the insertions of the dorsal setae *z1* and *z2*, while *O. siculus* has peritremes slightly elongated and with their anterior tips between setae *j1* and *j2*. Considering this character state, *O. euparadactylifer* sp. n. can be considered as an intermediate species with anterior tips of peritremes between setae *j2* and *z1*.

Notes. In the new species, we have found an unusual and remarkable form of the pretarsal paradactyli on legs II–IV (these structures are strongly elongated, apically pointed and with their tips projecting well beyond the claws; Fig. 3). This modification has not been recorded neither in the genus *Onchodellus* or other pachylaelapid genera up to now, and it may be a morphological adaptation to life in semiaquatic coastal environment of supralittoral zone, enabling movement in very humid substrates. Functionally similar adaptations occur in some strongly hygrophilous Blattisociidae, namely *Cheiroseius* Berlese 1916, *Cheiroseius* Evans et Baker, 1991 and *Platyseius* Berlese, 1916, in which the paired paradactyli (together with some elongated structures of the pulvillus) have a form of large expanded and flattened projections (Lindquist et al. 2009). All enlarged and acutely pointed structures which can be found on the apical parts of legs II–IV are considered to be adaptations for moving



Figs 4–6. *Onchodellus euparadactylifer* sp. n., female: 4 — tube of sperm access system opened onto coxa III (Cx III), 5 — epistome, 6 — chelicera (lateral view).

in moist substrates (Evans and Hyatt 1960), on the water surfaces (Karg 1971), or in very humid dung habitats (Mašán and Halliday 2010).

ACKNOWLEDGEMENTS

This study was partly supported by the Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Academy of Sciences [VEGA Grant No. 2/0012/11].

REFERENCES

Evans, G.O. 1963. Observations on the chaetotaxy of the legs in the free-living Gamasina (Acari: Mesostigmata). *Bulletin of the British Museum (Natural History), Zoology*, 10: 277–303.

- Evans, G.O. and Hyatt, K.H. 1960. A revision of the Platyseiinae (Mesostigmata: Aceosejidae) based on material in the collections of the British Museum (Natural History). *Bulletin of the British Museum (Natural History), Zoology*, 6: 27–101.
- Johnston, N.D.E. and Moraza, M.L. 1991. The idiosomal adenotaxy and poroidotaxy of Zerconidae (Mesostigmata: Zerconina). In: F. Dusbábek and V. Bukva (Eds.). *Modern Acarology, Volume II*. The Hague, pp. 349–356.
- Karg, W. 1971. Acari (Acarina), Milben, Unterordnung Anactinochaeta (Parasitiformes). Die freilebenden Gamasina (Gamasides), Raubmilben. *Die Tierwelt Deutschlands*, 59: 1–475.
- Koroleva, E.V. 1977. [Family Pachylaelaptidae Vitzthum, 1931]. In: M.S. Ghilyarov and N.G. Bregetova (Eds.). *Opredelitel pochvoobitayushchikh kleshchey, Mesostigmata*. Leningrad, pp. 411–483. [in Russian]
- Lindquist, E.E. and Evans, G.O. 1965. Taxonomic concepts in the Ascidae, with a modified setal nomenclature for the idiosoma of the Gamasina (Acarina: Mesostigmata). *Memoirs of the Entomological Society of Canada*, 47: 1–64.
- Lindquist, E.E., Krantz, G.W. and Walter, D.E. 2009. Order Mesostigmata. In: G.W. Krantz and D.E. Walter (Eds.). *A Manual of Acarology (Third Edition)*. Lubbock, pp. 124–232.
- Mašán, P. 2007. A review of the family Pachylaelapidae in Slovakia, with systematics and ecology of European species (Acari: Mesostigmata: Eviphidoidea). Bratislava, 247 pp.
- Mašán, P. and Halliday, B. 2010. Review of the European genera of Eviphididae (Acari: Mesostigmata) and the species occurring in Slovakia. *Zootaxa*, 2585: 1–122.
- Mašán, P. and Halliday, B. Review of the mite family Pachylaelapidae (Acari: Mesostigmata). *Zootaxa* (in press).
- Moraza, M.L. and Peña, M.A. 2005. The family Pachylaelapidae Vitzthum, 1931 on Tenerife Island (Canary Islands), with description of seven new species of the genus *Pachylaelaps* (Acari, Mesostigmata: Pachylaelapidae). *Acarologia*, 45: 103–129.